

# **CONTROL CIRCUITS AND METHODS FOR INHIBITING ABRUPT ENGINE MODE TRANSITIONS IN A WATERCRAFT**

## **Abstract of the Disclosure**

One embodiment of the present invention provides a control circuit and method for controlling the throttle valve position and shift mode of a watercraft's engine so as to reduce abrupt engine speed and shift mode transitions. The control circuit controls the actual shift mode (forward, reverse or neutral) and throttle valve position of the engine based on throttle and shift mode signals or commands generated by an operator via a control device, and based further upon the current shift mode and throttle valve position of the engine. When the operator abruptly adjusts the throttle, the control circuit more gradually adjusts the position of the throttle valve to smooth the transition in engine speed. The control circuit also delays operator-commanded transitions in the engine's shift mode, as necessary, so that changes in the engine's shift mode occur while the throttle valve is in the closed or nearly closed position.

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